REMARKS/ARGUMENTS

In response to the Examiner's further Office Action of June 29, 2005 the Applicant submits the accompanying Amendments to the claims and the below Remarks directed thereto.

Claims 1-16 are pending in the present application. In the Amendment:

independent claim 1 is amended to incorporate subject matter from pending claim 8 by reciting that the actuator is moveable with respect to the nozzle chamber upon actuation by passing an electric current through a portion of the actuator to cause differential thermal expansion in the actuator. Support for this amendment can be found in pending claim 8 and at page 11 of the present specification;

dependent claim 7 is cancelled and claim 8 is amended in conformance with amended claim 1;

dependent claim 12 is rewritten to be in independent form by incorporating the subject matter of pending independent claim 1; and

claims 2-6, 9-11 and 13-16 are unchanged.

It is respectfully submitted that the above amendments do not add new matter to the present application.

Allowable Subject Matter

The Applicant appreciates the Examiner's indication that the subject matter of pending claims 8 and 12-15 is allowable under the conditions stated in the Office Action.

As discussed above, independent claim 1 has been amended to incorporate the allowable subject matter of pending claim 8 and dependent claim 12 has been rewritten to be in independent form by incorporating the subject matter of pending independent claim 1.

Thus, it is respectfully submitted that amended independent claim 1 and rewritten independent claim 12, and claims 2-6, 8-11 and 13-16 dependent therefrom, are in condition for allowance at least because the independent claims incorporate allowable subject matter and for the below discussed reasons.

35 USC 102(b) Rejections

It is respectfully submitted that the subject matter of amended independent claim 1, claims 2-6, 8-11 and 16 dependent therefrom, is not disclosed by Kashino et al. (USP 6,007,187), for at least the following reasons.

In the present invention, backflow of ink towards ink inlet channel 22 along the ink flow path to nozzle chamber 75 is reduced by positioning the ink inlet channel away from ink ejection port 88 of the nozzle chamber, as illustrated in Fig. 3A of the present application, for example. This backflow may result from the movement of actuator 30, which is used to cause ejection of the ink from the ink ejection port. The actuator movement is caused by passing an electric current through the actuator to cause differential thermal expansion therein (see pages 11, 14 and 15 of the present specification).

On the other hand, Kashino discloses a liquid ejecting head 1 in which a heat generating element 2 is used to heat ink to cause a bubble. This bubble forces a movable member 6 towards ejection outlet 11 which controls the migration of the bubble to the outlet and provides high-speed ejection. Kashino discloses that the ink is refilled via liquid flow path 3b independently of the movement if ink about the movable member and ejection outlet (see col. 10, lines 23-col 12, line 38 of Kashino).

Thus, Kashino does not disclose a nozzle arrangement in which a movable actuator is used to eject ink, where the actuator movement is caused by passing an electric current through the actuator to cause differential thermal expansion therein. Rather, the "actuator" in Kashino is the heat generating element and the moveable member merely facilitates control of the rate of ejection.

Further, there is no motivation for those of ordinary skill in the art to modify the "actuator" of Kashino to operate in this manner. This is particularly the case, since the arrangement of the heat generating element, movable member and ink flow path of Kashino is disclosed as not causing backflow of ink into the ink flow path.

Thus, it is respectfully submitted that the subject matter of amended independent claim 1 and claims 2-6, 8-11 and 16 dependent therefrom, is not taught or suggested by Kashino.

It is respectfully submitted that all of the Examiner's rejections have been traversed. Accordingly, it is submitted that the present application is in condition for allowance and reconsideration of the present application is respectfully requested.

Very respectfully,

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